

**[A] USER SUPPORT APPARATUS AND SYSTEM USING AGENTS****BACKGROUND OF THE INVENTION****1. Field of the Invention**

[0001] The present invention relates to a user support technique, [and it]
5 particularly [relates] to a user support system that supports users' processes
such as [an] operations and [an] information retrieval using agents.

2. Description of the Related Art

[0002] With the widespread use of the Internet and mobile phones, more and
more people are using personal computers and various types of information
10 terminals. In recent years, sales of electronic equipment such as personal
computers have been [greatly] increasing dramatically, and as a result, the
number of beginners or persons who lack computer literacy [have] has risen
rapidly [increased in number]. With the remarkable improvements in CPU
power, memory capacity and graphical user interfaces [or] (GUIs), [such]
15 novices have been provided with [a] methods [which] that allow[s] them to
operate their equipment easily. Without [such] aids [as] like the GUI, [and the
like, the] novices [is] would not be [un]able to utilize many of the advanced
functions [of] their equipment [and to] can perform or access necessary
information properly.

20 **[0003]** [As one such user support technology, an agent technology is known
and is in use.] Agent technology has become known and accepted as one form

of user support technology. An agent is [basically] a personified character that appears on a computer display, obtains a user's [utterance] command, and [transfers the utterance] relays that command to the computer. The resulting [of processes in the] computer output is then presented to the user as a[n
5 utterance] response from the agent. (All user inputs are referred to as commands and all agent outputs are referred to as responses throughout.)
[With the presence of the agent, the inexperienced user can be relieved of a sense of awkwardness when he/she works with the computer and can feel as though the computer is talking to him/her.] The agent's presence can eliminate
10 a great deal of awkwardness for the inexperienced user and give the impression that the computer is carrying on a conversation.

[0004] [On the other hand] However, [it demands a very great] it requires a substantial amount of effort for a system administrator to properly manage and refine an agent system [properly]. [As the user is a human being,] The range of
15 a human user's commands [his/her utterances] is almost infinite. [Although] And while it is impossible to anticipate all of these [utterances] commands, [and prepare for real utterances produced by the user, it is possible that the] a user may expect [that] the agent to [can] accurately [understand] interpret any [utterances] command he/she might [make and] give and provide a quick and
20 proper response[s to them]. Even if a substantial [amount] number of [the] potential user [utterances] commands [is] are anticipated, it is [a] very [hard task] difficult for an agent system to search and identify the user's [words expressed] commands [by the user in a very short response time close to] and

provide near real-time response. Moreover, as the number of [the] anticipated [utterances] commands increases, the load on the server [that controls] controlling the agent also increases, as it must handle a larger amount of data.

SUMMARY OF THE INVENTION

5 **[0005]** The [present] invention described herein has been made [with a view] to address the above-mentioned problems, and [an object thereof] is intended to provide [a] user support technology [by means of which] that permits an agent [can] to [give a quick response] respond quickly to a wide range of user [utterances] commands and requests. [Another object of] The present invention
10 is also intended to provide [an] agent technology [by which] that will allow the agent's responses [of agents can] to be continuously and effectively enhanced [in] with respect to their accuracy and flexibility.

[0006] [According to one aspect of the present invention, a user support system is provided.] A user support system is one aspect of the present
15 invention. The system comprises a first block which has an electronic collection of user [utterances,] commands and identifies [a] the contents of a given user [utterance] command, and a second block which has an electronic collection of action patterns [for an] that enable the agent [for responding to user utterances, and enables the agent] to respond to the user [utterances] commands. The
20 user [utterance] command collection and the agent action collection are configured separately [constructed by configuring the first block and the second

block separately]. In this [configuration] arrangement, the user [utterance] command collection and the agent action collection can be accessed independently, [and thereby] allowing the process of identifying the user [utterances] commands and the process of determining the agent responses

5 [can] to be executed in parallel.

[0007] The agent is not always a visible character [but the agent here]. It may also [means] represent a user support program that is [itself] invisible [from] to the user or other functions such as a back-end process in the system. The agent action patterns [of the agent] include [the] agent responses [utterances],

10 images, behaviors, or any other processes related to supporting users. The [utterance of the] user commands and [the] agent responses are [is] not only verbal/auditory [made in a voice,] but may also be given in text [data]. [The utterance] Commands may include [oral or] any form of spoken words or sentences that can be converted into text data [by] through a speech

15 recognition process.

[0008] The system may include [a plurality of the] multiple second blocks, and each of the second blocks may offer a specialized service to the user. For instance, the first block and the [plurality of the] multiple second blocks may be configured as different nodes in a network and communicate with the user via

20 the network. In this [case] configuration, the user may be a client and the first and second blocks may be servers, [and thus] creating a client-server system [can be configured].

[0009] The first block may [be] serve as an entrance or portal server to identify the user [utterances] commands, and an appropriate [one of the] second block[s] may be selected according to the contents of the identified user [utterance] command. [The] A second block[s] may be provided for [each] any 5 service category, [such as] including news, fortune telling, travel, cooking, business, health and so on. In this case, since each second block has a specific theme, the agent [on] for each second block can be easily maintained and refined. In addition, since the [utterances] commands on different topics are processed on different nodes, the system load can be distributed and 10 balanced among the nodes.

[0010] The first block may include a[n] [utterance] command search unit [which] that searches [the utterance of] for the user's command in the user [utterance] command collection, and a reporting unit [which] that notifies a system administrator when the user [utterance] command is not found in the 15 user [utterance] command collection. When notified, the administrator can answer [to] the user or revise the user [utterance] command collection and the agent action collection.

[0011] The system may further [comprise] include a recording unit that [obtains] maintains a record of the user's access to the system. The second 20 block may then choose[s] one [from] of [a plurality of] several [choices of the] possible agent actions [of the agent to] in response[d] to the user's [utterance] command, depending upon [a situation] the history of the user's access.

[0012] The first block may further include an index storing unit that stores an index of the contents of the user [utterance] command collection. The search unit can [initially] then perform an initial index-search for the given user [utterance] command to narrow the search scope and improve the search speed [can be improved].

[0013] The search unit may also perform a full text search for the user [utterance] command. The full text search here means that the user [utterance] command is matched with all [utterances] commands registered in the user [utterance] command collection and compared on a full text basis. Although the full text search can be performed independently from the index search, it may be preferable to perform the index search [may be preferably performed] to narrow the search scope before performing the full text search. In other words, the system designer can register many user [utterances] commands without [caring about] concern over their similarity and as a result [the given] a user [utterance] command [could] can be easily searched by the full text search. By using the full text search to identify [the] user [utterances] commands, the user's intent[ion] can be identified precisely [with high accuracy] and the agent's response can be very accurate. Thus, the index search and the full text search can allow the [volume] size of the user [utterance] command collection to increase without sacrificing [the] system performance.

[0014] Still another object of the present invention is to provide a translation system as a convenient communication tool with [great convenience and] excellent performance.

[0015] [According to one aspect of the present invention, a translation system
5 is provided.] A translation system is provided as an aspect of the present invention. The translation system comprises a first block [which has] that contains an electronic collection of user [utterances] commands[,] and identifies [a] the contents of a given user [utterance] command, and a second block [which] that has an electronic dictionary file for translating the user [utterance,]
10 command and provides the user with an expression corresponding to the [utterance] command in another language. The first block and the second block are configured as different nodes accessing [a] the network so that the user [utterance] command collection and the dictionary file are separately constructed. The first block may be called [an] the entrance server since it
15 receives the user [utterance] command, while the second block may be called [a] the translation server since it is in charge of the translation. The translation server may be divided into [a plurality of] multiple servers, and each server may deal with [each] a specialized field. For instance, [the] each server[s] may be separately configured for [each of] a topic[s] such as scientific technology, daily
20 conversation, politics, [and] the economy, or the like. The entrance server may be used to [judge] determine which server is most appropriate to handle the user [utterance] command.

[0016] [In order to distribute the processes of identifying and translating the user utterance,] The first and [the] second blocks are separately configured as different network nodes in order to distribute the processes of identifying and translating the user commands. The first and [the] second blocks may be

5 configured as servers that [the] are accessed by the user terminal [accesses]. Such distributed processing can improve [the] overall system performance [of the system. Such distributed system is] and [easy to maintain] make the maintenance and enhancement processes easier. If [the] translation servers are provided for each specialized field, each of the servers can be maintained

10 independently.

[0017] [The corresponding expression is, for instance,] An example of the translation system is [an] the English translation "Good morning" of [a] the Japanese [utterance] command "Ohayo". The system may include a target language setting unit that enables the user to set[s] a translation language or a

15 target language.

[0018] The first block may include a[n] [utterance] command search unit [which] that searches [the utterance of] for the user's command in the user [utterance] command collection, and [a] the reporting unit [which] that notifies [a] the system administrator when the user [utterance] command is not found in the

20 user [utterance] command collection. Thereby the administrator can revise the user [utterance] command collection and the dictionary file.

[0019] [According to another aspect of the present invention, a translation system is also provided.] Thus, the translation system comprises an electronic collection of user [utterances] commands, a[n] [utterance] command search unit [which] that identifies [a] the contents of a given user [utterance] command using the user [utterance] command collection, a dictionary file [which] that describes [correspondence] the relationship between multiple languages for anticipated [utterances of the] user commands, a function block [which] that offers [a] predefined services to the user, a target language setting unit which sets [a] the translation language that [is] will be used by any number of users who assemble virtually to [receive] utilize the offered service [as a target language for translation], and a corresponding expression search unit. The expression search unit [which] compares [a] the contents of a[n utterance] user command [given by any one of said users], which is identified by the [utterance] command search unit, with the dictionary file and identifies [an] the expression that corresponds[ing] to the [utterance] users' command in the target language. The function block then offers the corresponding expression [embedded in] retrieved using the said service.

[0020] The predefined services include[s] any service[s] in which a translation between multiple languages can be utilized. [The] Multiple users [who] may assemble virtually to [receive the offered] make use of the translation service [may be a plurality of users who join a chat service] on the Internet by accessing a predefined Web page [to receive the service]. [The language used by such] Those users may [be] then converse in their [mother tongue] native languages.

[0021] In this aspect of the present invention, when a user [makes] gives a[n] [utterance] command, it is translated to a corresponding expression in [a] the target language and embedded in[to] the service. Therefore each of the system's users [of the system] can receive the service in [his/her] their [mother
5 tongue] native language. The system can be applied to a chat service shared by people speaking different languages or a network [RPG or] role-playing game (RPG) in which many users from different countries can participate. The system can [be] also be applied [a system that only one] to single user [uses] applications, such as [an] online shopping or a ticket booking service offered in
10 a foreign language.

[0022] The function block may be used to customize the service for each user on a target language basis[,] by embedding a corresponding expression in each user's [mother tongue] native language into the service offered [to each user]. If a [user is multinational and] multilingual user speaks five languages, there could
15 be five corresponding expressions, but the service may be sufficient[ly offered to] for the user even when offered only in [his/her] their [mother tongue only] native language.

[0023] [According to yet] The user support apparatus is another aspect of the present invention [, a user support apparatus is provided]. The apparatus
20 comprises a first block [which] that [has] contains an electronic collection of user [utterances,] commands and identifies [a] the contents of a given user [utterance] command, and a second block [which] that [has] contains an

electronic collection of action patterns for [an] the agent [for responding to user utterances,] and enables the agent to respond to the user [utterances] commands. The user [utterance] command collection includes a general [utterance] command library that stores general user [utterances] commands and a specialized [utterance] command library that stores [utterances] commands related to [a] the agent's specialized field [of the agent].

[0024] The general [utterance] command library may be configured as a natural language library such as a dictionary for a kana-to-kanji converting system in a Japanese word processor. It is not necessary to [provide] configure the general [utterance] command library and the specialized [utterance] command library separately [, but both the libraries may be united as a one library].

[0025] [Another aspect of the present invention is a] The user support system forms another aspect of the present invention. In the system, [a plurality of the] multiple user support apparatuses [is] are provided, [according to] one for each [said] specialized field, and these [plurality of the] multiple user support apparatuses are connected to [a] the network as separate network nodes [, and each node is so] that are configured [as] to be accessible [from] to each [the] user.

[0026] A server that includes the specialized [utterance] command libraries [of] for all of the user support apparatuses within the user support system may

be [provided] included. This server may [be] function as an entrance server or [a] portal server that can identify all user [utterances] commands to be processed [at] by the user support system. [An] The entrance server may select the appropriate server [for] to respond[ing] to [the] a user [utterance may
5 be selected according] based upon [to] the contents [of] it identifies in the [utterance] user's command [identified by the server].

[0027] [Still a] Another object of the present invention is to provide a user support technology [by means of which] that will enable a user [can] to [get] obtain the [desired] information he/she desires in a friendly environment and
10 that will smoothly execute the user's desired processes [can be smoothly executed] on a computer or other apparatus.

[0028] [According to one aspect of the present invention, a user support apparatus is provided]. The user support apparatus comprises a[n] [utterance] command identification block [which] that has an electronic collection of user
15 [utterances,] commands and identifies [a] the contents of a given user [utterance] command, and a response block [which] that has an electronic collection of action patterns [for a] that enable the first agent [for] to respond[ing] to user [utterances,] commands [and enables the first agent to respond to the user utterances. The utterance identification block has an additional collection
20 of anticipated utterances to which the first agent should react among utterances that a second agent make to the user, and identifies a content of an utterance of the second agent if the utterance of the second agent exists in the additional

utterance collection, and the response block has an additional collection of action patterns for the first agent for reacting to the utterances of second agent, and enables the first agent to occasionally react to the utterances of the second agent]. The command identification block has an additional collection of anticipated commands that a second agent may make to the user, to which the first agent should react, and it identifies the contents of the second agent's command if it exists in the additional command collection. The response block has an additional collection of action patterns that the first agent can then use to react to the commands of the second agent, which occasionally enables the first agent to react directly to the second agent.

[0029] [The] Agent is used here [is] as [a] the generic name of a function for supporting a user's [to] search for information or navigation [ing the user] to [access] desired information, and that [the] function [mainly enables] primarily consists of a personified character [to] that appears on [a] screen and converses with the user. The first agent is implemented on the user support apparatus and acts [inside the user support apparatus] within it, while the second agent may act outside of the user support apparatus. While the second agent and the user converse, the first agent can react if the conversation is related to [his] its interests, even when the first agent [is] has not been talking with the user.

[0030] [Another aspect of the present invention is a user support system. In the system, a plurality of the] Multiple user support apparatuses [is] are

provided, [according to each] corresponding with the specialized fields in the
system, and [the plurality of the] each user support apparatus [are] is connected
to [a] the network as a separate network node[s]. [and the] The additional
[utterance] command collection, the agent action collection, and the additional
5 action collection [of] for each user support apparatus are generated according
to [each] the specialized field each represents.

[0031] In this system, the [plural] multiple user support apparatuses may
include the respective response blocks therein and share the [utterance]
command identification block at any one of the network nodes. In this
10 configuration, the shared [utterance] command identification block may include
the user [utterance] command collections of all other apparatuses.

[0032] In this system, each user support apparatus may [include] host the
first agent [on the apparatus], and if the first agent appears on any other
apparatus, the first agent may act as a second agent on [said other] that
15 apparatus.

[0033] Moreover, any arbitrary combination of the above-mentioned structural
components in the present invention is still effective as an embodiment when
applied as a method, a system, a server, a terminal, [or] a computer program,
[and so forth] or any other embodiment.

[0034] This summary of the invention does not [necessarily] describe all necessary features, so [that] the invention may also be a sub-combination of these described features.

BRIEF DESCRIPTION OF THE DRAWINGS

5 **[0035]** Fig. 1 is [an] the overall structure of [a] the network system including [a] the user support system according to the first embodiment.

[0036] Fig. 2 is [an] the internal structure of [an] the originating server in [a] the user support system.

[0037] Fig. 3 is [an] the internal structure of [an] the index file in [an] the
10 originating server.

[0038] Fig. 4 is [an] the internal structure of [a] the user [utterance] command collection in [an] the originating server.

[0039] Fig. 5 is [an] the internal structure of [an] the access information file in [an] the originating server.

15 **[0040]** Fig. 6 is [an] the internal structure of [a] the chat server in [a] the user support system.

[0041] Fig. 7 is [an] the internal structure of [a] the user terminal [to utilize a] used to access the user support system.

[0042] Fig. 8 shows [a] the local agent displayed on [a] screen when [a] the user has activated [a] the user terminal.

5 **[0043]** Fig. 9 shows [a] the chat agent displayed on [a] screen when [a] the user [makes] enters a[n] [utterance] command.

[0044] Fig. 10 shows [a] the menu agent displayed on [a] screen when [a] the user asks for a recipe.

[0045] Fig. 11 shows how [a] the recipe agent [requests a] asks the user to
10 [give] provide a hint to narrow [a] the [search] scope of the search.

[0046] Fig. 12 shows how [a] the recipe agent presents [a] the search results to [a] the user.

[0047] Fig. 13 is [an] the overall structure of [a] the network system including [a] the translation system according to the second and the third embodiments.

15 **[0048]** Fig. 14 is [an] the internal structure of [an] the entrance server [as] represented by the first block of the second embodiment.

[0049] Fig. 15 is [an] the internal structure of [a] the user [utterance] command collection in [an] the entrance server.

[0050] Fig. 16 is [an] the internal structure of [a] the translation server [as] represented by the second block of the second and the third embodiments.

5 **[0051]** Fig. 17 is [a] the data structure of [a] the dictionary file in [a] the translation server.

[0052] Fig. 18 shows [a] the screen displayed when [a] the user accesses an entrance server to [receive a] use the translation service.

10 **[0053]** Fig. 19 shows [a] the screen displayed when a user accesses [a] the translation server.

[0054] Fig. 20 is a flow chart showing [a] the translation procedure according to the second embodiment.

[0055] Fig. 21 is [an] the internal structure of [an] the entrance server according to the third embodiment.

15 **[0056]** Fig. 22 illustrates a Japanese version of [a] the screen of a multilingual chat service according to the third embodiment.

[0057] Fig. 23 illustrates an English version of [a] the screen of a multilingual chat service according to the third embodiment.

[0058] Fig. 24 is [an] the overall structure of [a] the network system including [a] the user support[ing] system according to the fourth embodiment.

5 **[0059]** Fig. 25 is [an] the internal structure of [an] the originating server in [a] the user support system.

[0060] Fig. 26 is [an] the internal structure of [an] the index file in [an] the originating server.

[0061] Fig. 27 is [an] the internal structure of [a] the user [utterance]
10 command collection in [an] the originating server.

[0062] Fig. 28 is [an] the internal structure of [an] the access information file in [an] the originating server.

[0063] Fig. 29 is [an] the internal structure of [an] the agent action collection in [an] the originating server.

15 **[0064]** Fig. 30 is [an] the overall structure of [a] the network system including [a] the user support system according to the fifth embodiment.

[0065] Fig. 31 is [an] the internal structure of [an] the originating server in [a] the user support system.

[0066] Fig. 32 is [an] the internal structure of [an] the additional index file in [an] the originating server.

5 [0067] Fig. 33 is [an] the internal structure of [an] the additional [utterance] command collection in [an] the originating server.

[0068] Fig. 34 shows [a] the local agent displayed on [a] screen when a user has activated [a] the user terminal.

[0069] Fig. 35 shows [a] the chat agent displayed on [a] screen when a user
10 [makes] enters a[n] [utterance] command.

[0070] Fig. 36 shows [a] the recipe agent displayed on [a] screen when [a] the user asks for a recipe.

[0071] Fig. 37 shows how [a] the recipe agent presents a search result to [a] the user.

15 [0072] Fig. 38 shows [a] the travel agent displayed on [a] screen.

[0073] Fig. 39 is [an] the overall structure of [a] the user support apparatus according to the sixth embodiment.

[0074] Fig. 40 is [an] the overall structure of [a] the user support apparatus according to the seventh embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0075] The invention [will] is now [be] described on the basis of the preferred
5 embodiments, which [do not] are not intended to limit the scope of the present invention, but serve to exemplify it [the invention]. All of the features and [the] combinations thereof described in the embodiment are not necessarily essential to the invention.

[0076] Fig. 1 shows [an] the overall structure of [a] the network system 10,
10 including [a] the user support system 16, according to the first embodiment of the present invention. Here [a] the user terminal 12 and [a] the user support system 16 are connected to each other via the Internet 14. The user terminal 12 is a personal computer, a Personal Digital Assistant (PDA), a mobile phone with [access to the] Internet access 14, or any other suitable [item of]
15 hardware device.

[0077] The user support system 16 includes [an] the originating server 20, [a] the chat server 24, and [a] the recipe server 26. The originating server 20 is the first processing block, and [both] the latter [two] servers are the second processing blocks. These three servers are connected to the Internet 14.
20 Thus, the originating server 20, the chat server 24, and the recipe server 26 are configured as separate network nodes, and therefore the processing[es] of user

[utterances] commands and agent [utterances] responses can be distributed among the servers. Since an agent performing in a different field can [be] also be implemented in a different node, maintenance can easily be carried out on each of the agents. The names "chat server" and "recipe server" are [given] 5 assigned according to [an] the allotted [field] or [a] specialized field of the agent. [In the following] Throughout this application, [such] servers such as the chat server 24 and the recipe server 26 are [each] generally referred to as [a] specialized servers, and agents placed on these servers are referred to as expert agents. Although the user support system 16 may be configured as one 10 unit or apparatus, for instance as one component [inside] within a portal site, it is assumed in the following that the system is configured as separate nodes and the originating server 20 serves as [a] the portal server for the user terminal 12.

[0078] Although full details are given below, the abstract of the process in Fig. 1 is as follows. When the user activates the user terminal 12, [a] the local 15 agent implemented inside the user terminal 12 appears on its screen. The local agent waits for the first [utterance of the] user command. This [utterance] command is referred to as [a] the process [starting] initiating [utterance] command [in the following]. The process [starting utterance] initiating command is transmitted to the originating server 20 via the Internet 14. At that time, the 20 user terminal 12 displays a Web page [of] from the originating server 20 on an [WWW] Internet browser.

- [0079] The originating server 20 has a collection of user [utterances] commands, that is a collection of [utterances] commands that users are expected or anticipated to [produce] use. The process [starting utterance] initiating command is matched with the collection and the content of the
- 5 [utterance] command is recognized. As a result, [an] the expert agent [appropriate] designated to respond to [the] that process [starting utterance] initiating command is identified and the URL of its specialized server, as denoted by URLa and URLb in the figure, is sent to the [browser of the] user terminal's 12 browser. When the user terminal 12 obtains the URL, [a Web
- 10 page of] the specialized server's Web page is displayed on the screen [,] and the expert agent appears. The specialized server contains a collection of action patterns for the expert agent [,] and responds to the process [starting] [utterance] initiating command and subsequent user [utterances] commands, which are referred to as normal [utterances] commands. Although agent
- 15 [utterances] responses [of the agent] are [mainly] considered [as] to be the agent's primary behavior [in the following], the agent may also [respond] reply to the user through [a] gestures or other actions, [or may respond] by changing the color or texture of its image, or by performing a search or any other program process[es].
- 20 [0080] When the user [makes] enters a new [utterance] normal command [, that is a normal utterance, to] for the expert agent, the [utterance] command is captured and sent to the originating server 20, as denoted by URLs in the figure. The originating server 20 once again identifies [again an] the expert

agent designated to respond to the [utterance] command, [and] then transmits the URL of its specialized server to the user terminal 12. [Again,] The following sequence is repeated:

1. the originating server 20 identifies [a] the user [utterance]
5 command;
2. the originating server 20 identifies [a] the specialized server [appropriate] designated to process the identified [utterance] command;
3. [an] the expert agent on the specialized server responds to the user; and
- 10 4. the expert agent requests or prompts the user to [make] enter a normal [utterance] command.

[0081] Thus, the process always returns to the originating server 20 and [then] restarts from there. It is for this reason that the server is named the originating server.

- 15 **[0082]** Fig. 2 shows [an] the internal structure of the originating server 20. In this figure, "H" indicates [utterance] command data, "I" indicates an index search [of] for the [utterance] command, "F" indicates [a] the file name [having] containing the URL of [a] the specialized server designated to respond to the [utterance of the] user's command, and "X" indicates an unidentified [utterance,]
20 respectively] command. The structure shown in Fig. 2 may be implemented [with] using a CPU, memory, and a program loaded in the memory. In the figure, however, the blocks are not divided in terms of hardware and/or software

components, but rather in terms of function. Those skilled in the art can therefore understand that [the] various combinations of hardware and software components can achieve the functions of these blocks. The same consideration is applied to the whole specification.

- 5 **[0083]** [A] The communication unit 30 communicates with the specialized server and the user terminal 12 via the Internet 14. [An utterance] The command obtaining unit 32 captures [an utterance from] a user command and sends it to [an utterance] the command search unit 34. The [utterance] command search unit 34 initially checks the first character of the [utterance] command with [an] the index file 36 to search by index, [and] then identifies the contents of the [utterance] command by conducting a phrase search through the whole [utterance] command. The phrase search is a process of finding any phrase that matches the [utterance] command, not only by word but also by phrase. If no corresponding phrase is found, the [utterance] command is
- 10 divided into morphemes and a search for a closely related expression is
- 15 [searched for] conducted [by] using the key word or words.

- [0084]** The index file 36 is generated by arranging the anticipated [utterances] commands stored in [a] the user [utterance] command collection 38 in the order of the Japanese syllabary. Since the first character of the [utterance] command
- 20 is checked with this index file 36, the search for the [utterance] command can be conducted with great speed, even if the user [utterance] command collection 38 is very large. As described below, since the user [utterance]

command collection can easily be enhanced in this embodiment, the size of the [utterance] command collection 38 can be greatly increased [in size]. In this respect, the speed gained by the initial index search is highly advantageous.

[0085] When a[n] [utterance] command is identified using the index file 36, [a]
5 the file descriptor [of] for [a] the file describing information such as [a] the URL
of [a] the specialized server that should respond to the [utterance] command is
identified in the index file 36, and the file [itself] built into the user [utterance]
command collection 38 is opened [and] to obtain the proper URL [obtained].
The user [utterance] command collection 38 has one file devoted to each
10 [utterance] command. The URL obtained from the file is forwarded to [the
browser of] the user terminal's 12 browser via the communication unit 30 and
the user terminal 12 in turn accesses the specialized server. Strictly speaking,
the URL does not point to a general Web page on [of] the specialized server,
but rather a [personalized] particular page [to] that responds to the [utterance of]
15 the] user's command. One page is allocated to [one] each [utterance]
command, and in some cases, multiple pages are allocated to [one utterance] a
single command. The latter cases are described below.

[0086] A statement [exactly] corresponding exactly to the [utterance of the]
user's command may not always have been previously stored in the user
20 [utterance] command collection 38. [Especially in the process of enhancing the
user utterance collection 38, a] A [perfectly corresponding] statement that
corresponds exactly [may] will be especially [not be found] hard to find during

the process of enhancing the user command collection 38. In this case, the [utterance] command search unit 34 breaks [down] the user's command [utterance] into morphemes by a known method and finds the most probable [utterance] command [from] in the user [utterance] command collection 38 by

5 [re-searching] conducting another search employing a logical AND of the morpheme's nouns [of morphemes] or by similar processes. Each [utterance] command for which the [a re-search] second search is [conducted and each utterance for which the re-search is not] unsuccessful is recorded as an unidentified [utterance] command in [an] the unidentified [utterance] command

10 file 40, and [an administrator of] the originating server's 20 administrator is notified [of this] via the communication unit 42 [in an] by electronic mail or [the like] similar device. The administrator then prepares a new registration [registers anew] for [such] the unidentified [utterances] command and lists the URL of [a] the page on [of a] the specialized server that should respond to the

15 [utterance] command in the user [utterance] command collection 38. [, and] The administrator then registers the index[es] of the [utterance] command in the index file 36 [,] and [then finally] designs processes including [utterances] responses for the expert agent on that page. For this kind of maintenance, the unidentified [utterance] command can be added [straight] directly to the user

20 [utterance] command collection 38 and no complicated process is involved. Therefore, it is [a] very easy [task] to enhance the user [utterance] command collection 38.

[0087] An access recorder unit 44 [records] captures the status of each user's access[ing of] to the specialized server in [an] the access information file 46. This enables the expert agent to respond differently to identical user [utterances] commands. For instance, when a user who first visits the chat server 24 says "Hello", the [expert agent of the] chat server's 24 expert agent, also referred to as [a] the chat agent, will say "Nice to meet you". [On the other hand] However, if the user visits the chat server 24 again, the chat agent [can] will say "Hello. How's it going?" [and so on.] Therefore, a certain sensitivity of response can be realized. The access recorder unit 44 notifies the [utterance] command search unit 34 of the user's access status. If multiple pages of the specialized server are employed in the user [utterance] command collection 38 in order to respond to a user [utterance] command, as in this example, the [utterance] command search unit 34 chooses [an] the appropriate page under the user access status and sets the [URL of the chosen page on the browser of the] user terminal's 12 browser to that page.

[0088] Fig. 3 is [an] the internal structure of the index file 36. Fig. 4 is [an] the internal structure of the user [utterance] command collection 38. The index file 36 has a Japanese syllabary column 100, a user [utterance] command column 102, and a file name column 104. The user [utterances] commands are arranged in the order of the Japanese syllabary. If the first character is "A", the [utterance] command is categorized corresponding to "A" of the Japanese syllabary column 100. [Likewise, the utterances are categorized by using the first character as shown in the figure.]

[0089] The user [utterance] command collection 38 has a file name column 104, a user [utterance] command column 102, and a page column 120 of [a] the specialized server designated to respond to the user. For instance, [a] the page [of a] on the specialized server designated to respond to the

5 [utterance] command "Hi" is URLa43, and [a] the pairing of the [utterance] command "Hi" [and] with URLa43 [forms a] indicates the file f044. The user [utterances] commands are gathered for each specialized server. For instance, the user [utterances] commands 110 which are linked to the chat server 24 are [put together] combined into one group, while the user [utterances]

10 commands 120 linked to the recipe server 26 are [put together] combined into another group. The former [utterances] command[s] grouping relates to general greetings and such, [.] while the latter [utterances] grouping relates to cooking and recipes. The index file 36 and the user [utterance] command collection 38 are linked together via file names. For instance, the file name f045 is recorded

15 corresponding to the [utterance] command "Hello" in the index file 36, and the file name points to the file f045 in the user [utterance] command collection 38.

[0090] As shown in Fig. 4, two pages, URLa1 and URLa2, correspond to "Hello". URLa1 will be sent to a user [who] upon their first visit[s] to the chat server 24 and URLa2 [is] will be sent to a user [who visits the server a further

20 time] upon each subsequent visit.

[0091] Fig. 5 illustrates [an] the internal description of the access information file 46. In this figure, the user "user1" has visited the specialized servers called

"chat", "recipe", and "auction" [before] previously, while the user "user2" has already visited the specialized servers named "travel" and "PC". Therefore, as stated above, when "user2" visits the chat server 24, the chat agent [starts] will begin with a[n utterance] greeting prepared for first-time visitors. When "user1" visits the chat server 24, the chat agent will produce[s] a[n utterance] greeting prepared for returning [re-] visitors.

[0092] Fig. 6 is [an] the internal structure of the chat server 24 and serves as an example of a specialized server. [A] The communication unit 60 communicates with the user terminal 12 and the originating server 20 via the Internet 14. The URL identified in the [utterance] command search unit 34 of the originating server 20, for instance[,] URLa1 or URLa2 corresponding to the [utterance] greeting "Hello" as in Fig. 4, is forwarded to [an] the agent [behavior] action collection 62 via the communication unit 60. The agent [behavior] action collection 62 includes agent data 72 that describes images and action patterns of the expert agent as well as its [utterances] commands. One page corresponding to one URL identified by the [utterance] command search unit 34 is also provided. For instance, [a] page 64 [for] corresponds to URLa1, [a] page 66 [for] to URLa2, and [a] page 68 [for] to URLan [are provided]. The pages are Web pages that not only carry the [utterances] chat agent's commands. [of the chat agent,] but also display its image and behavior, and perform services such as information retrieval using the agent [, for instance for information retrieval and such]. Thus, fully flexible responses can be realized

by providing one Web page for each [single utterance] command [, fully flexible responses can be realized].

[0093] Each page has almost the same configuration, so only page 64 [of] corresponding to URLa1 is described in detail [in this figure]. Page 64 [of the

5 URLa1] has an agent output unit 70, a user [utterance] command obtaining unit 74, and a specific process execution unit 76. These units are realized by using [CGI or] a Common Gateway Interface (CGI) script that is a back-end process running behind the [this] Web page. The agent output unit 70 responds to the user [utterance] command through the chat agent on the basis of the

10 agent data 72. The specific process execution unit 76 performs any process[es] other than [that of] responding to [utterances] commands. [,] For instance, it is capable of retrieving information and executing various types of programs. [For example,] If the user [utterance] command that brought the user to [access] this page is "I want to know today's news.", the chat agent will search the news

15 through the Internet 14 and present it to the user. The user [utterance] command obtaining unit 74 thereafter obtains a normal [utterance] command from the user [,] and notifies the originating server 20 [of this]. As a result, [a new specialized server is identified by the originating server 20] the originating server 20 identifies a new specialized server.

20 **[0094]** Fig. 7 shows the internal structure of the user terminal 12. [A] The communication unit 130 communicates with the originating server 20, the chat server 24, the recipe server 26, and other specialized servers via the

Internet 14. [A] The user interface 138 is a general term for the whole structure used to encourage a user to make a decision and enable[ing] them [user] to input [his/her decision] it [,.]. [and it] The user interface includes a keyboard, a mouse, a display, and other types of data interfaces. [A] The local agent output unit 132 reads local agent data 134 and forwards it [the data] to the user via [a] the user interface 138. The user's process [starting utterance] initiating command and normal [utterances] commands [of the user] are forwarded to [a] the user [utterance] command input unit 136 and then [these data are] sent to the originating server 20 via the communication unit 130 and the Internet 14.

10 The processes [involved in the] described in the [above-mentioned] configuration above [of the embodiment] are [now described using some] detailed in the following examples [as follows].

[0095] Fig. 8 shows [a] the screen 150 displayed when a user has activated the user terminal 12. [A] The local agent 152 appears and says, "Welcome! Let's chat." The user inputs "Hello" in [an] the input field 154 and presses [a] the send button. The screen may be configured in such a manner that the input field 154 appears when the user clicks the local agent 152. In this case, as long as the user does not click it, the local agent 152 may continue chatting or encourage the user to talk by asking a question. [In any case the inputted]

20 Once the statement "Hello" has been entered, it is sent to the originating server 20 as a process [starting utterance] initiating command [to the originating server 20,] and the chat server 24 is identified as [a] the appropriate specialized

server on the basis of the contents of the statement [, and] The user terminal 12 is then given access to [a] the corresponding page.

[0096] Fig. 9 shows [a] the screen 150 displayed when the user [makes] enters a[n utterance] command. Here [a] the chat agent 156 appears, but the
5 same image as the local agent 152 is used in this embodiment [and thus] so the conversation appears to continue[s with no apparent seams] seamlessly. The chat agent 156 says, "Hello. I am a chat agent. Call me Peako." When the user inputs "Recommend a recipe" and sends it, the [utterance is obtained at the] originating server 20 receives the command and a page on [of] the recipe
10 server 26 is [anew] identified. The [URL of the] identified page's URL is then sent to the user terminal 12 and the user terminal 12 is given access to that [the] page.

[0097] Fig. 10 shows [a] the screen 150 displayed when the user asks for a recipe. [A new] The recipe agent 160 appears and says, "OK! I am a recipe
15 agent. Trust me." Then the agent asks, "What kind of recipe would you like?" [The reason for this is that] The additional question is posed to the user because there could be many recipe choices [when a user asks for a recipe] and it is necessary to obtain a hint to narrow the scope of the search. The user inputs "Chinese cooking" and [submits it] selects send. Although this normal
20 [utterance] command is sent to the originating server 20, the specialized server identified therein is still the same recipe server 26 and the user is simply given access to another page on that [of the same] server.

[0098] Fig. 11 shows [a] the screen 150 displayed when the user gives a hint to narrow [down] the search. Here the recipe agent 160 asks, "Now, how about ingredients? Please select one," in order to further specify the search [further]. A [region] menu 162 appears [at] in the lower [part] portion of the screen 150, displaying several ingredient choices [of ingredients,] with radio buttons beside them. [Pork, beef, fish and such are given as choices.] Choices include items such as pork, beef, and fish. [Let us say that] The user may then make a selection, [selects] such as "beef", and press[es a] the send button.

[0099] Fig. 12 shows [a] the screen 150 that displays [a] the search results. [Although] The screen 150 [of] in Fig. 12 [is] differs[ent] from the screen 150 [of] in Fig. 11, [this is not because the accessed page has changed in response to the utterance, but] because [a] the page linked to the radio button "beef" has been accessed, not because of a response to the command. Thus, generally speaking, by embedding predefined choices in the [utterances of the] expert agent's responses, the user's intentions can be easily and reliably confirmed.

[0100] In Fig. 12, the recipe agent 160 says, "How about [this] these dishes?" and [some] recipe titles 170 [such as] including "Fried beef with green peppers" are displayed[.]. These choices reflect [since] the results of the search already performed on the Internet 14 [has already been performed] by the specific process execution unit 76 [under] using the query criteria "Chinese dishes" AND "beef" AND "recipe", that correspond to the user's request. These titles have links through which the user can access Web pages describing the recipes in

detail. In addition, other Web sites offering Chinese recipes are displayed in [a] the research result field 172 for the user's convenience [of the user]. In any case, the user can obtain the recipe details [of the recipes] by starting from this screen 150. In this figure, the user enters another normal [utterance] command 5 [of the user] "I would like to look at flight schedules" [is inputted] in [an] the input field 154. [When it] The normal command is sent [.,] to the originating server 20, which identifies [a] the travel agent on [a] the travel server (that is not shown in the figure) and the necessary processes are initiated.

[0101] [On the other hand] However, if the user inputs "I want to know about 10 Egyptian palace dishes", [this] the [utterance] command may not be identified. In such a case, [a] the system administrator is notified of the unidentified [utterance] command as it is entered, and then the user [utterance] command collection 38 and the index file 36 are updated. [In addition] Additionally, a new page [to respond to the utterance] is provided [in] on the recipe server to 15 respond to the command, and thereby information regarding Egyptian palace dishes is properly returned.

[0102] Although the present invention has been described by way of exemplary embodiments, it should be understood that those skilled in the art might make numerous changes and substitutions without departing from the 20 spirit and the scope of the present invention [that is] as defined by the appended claims. Some [such] potential changes and substitutions [alterations] are [stated as follows] identified below.

[0103] Although the user [utterance] command is [performed] entered [on] in [a] text [basis] format in the embodiment, it may also be [performed] entered using speech recognition. The agent may also [make utterances] respond [in voice] verbally.

5 [0104] Although [the] an unidentified [utterance] command is [considered] defined as a[n utterance] command that is not [identifiable] contained in the user [utterance] command collection 38, [if the utterance] a command [is] may also be considered unidentifiable if it is [identifiable] contained in the user [utterance] command collection 38 but the [response of the] expert agent's
10 response is not complete or fails to satisfy the user [, the utterance may be called an unidentified utterance]. For instance, when the specific process execution unit 76 searches for [a] the user [utterance] command "Recommend a recipe" and [the search results are] returns too many results to satisfy the user, the [utterance] command may be reported to the system administrator as an
15 unidentified [utterance] command so that the [response of the] expert agent's response can be improved.

[0105] In the embodiment, the expert agent's [utterance] response is [appropriately] selected according to the record of the user's access to the specialized server. Moreover, an appropriate [utterance of the] agent response
20 may be selected based on the user's attributes. For instance, if the user is female, a relatively gentle expression may be chosen or if the user is an elder, a polite expression may be [chosen] selected.

[0106] Although the local agent 152 and the chat agent 156 have the same image in the embodiment, it is not [necessary] required. For instance, the local agent 152 may be implemented as a process initiating agent on the originating server 20 instead of the user terminal 12 [as a process-initiating agent, for
5 instance].

[0107] The second embodiment of the present invention is [now] explained below. This embodiment relates to a translation technique, [and it] particularly [relates to a translation technique] one using a [server-] client-server system or other systems.

10 [0108] The [there has been] prior art includes [a] the well-known [apparatus called an] electronic dictionary in a[n] form similar to an electronic calculator. The [apparatus] device displays an English word or other foreign words corresponding to a word [inputted] entered by [a] the user. [The] Conventional printed dictionaries [in print] are very heavy, while portable dictionaries have
15 very small characters. Both are generally inconvenient for traveling on business or [on] holiday. However, the electronic dictionary [has] is portable[ility] and [is] suitable for traveling abroad, [and it can also] as well as [save] saving [a] space [for a use] at home. Therefore it has been gaining [support] popularity among specific users.

20 [0109] [Besides such a] In addition to the electronic dictionary [apparatus], [various types] a variety of computer software dictionaries are also on sale [as

computer software]. Although [its] their portability depends on the personal
computer hardware [of the personal computer], [such software made] these
programs made [the] dictionaries easier to use. For this reason, [not only] users
who write documents in a foreign language [but] and professional translators
5 use [such a] software [package of] dictionaries.

[0110] Such [apparatus] devices and software programs are designed for
[the] use [of] in looking up [a] words [in dictionaries]. The dictionary used in the
[apparatus] device or [the] software package [is] was originally just an electronic
version of a printed dictionary [in print, and the dictionary is] and was edited on
10 a single word basis.

[0111] Apart from professional translators and users who already write [/] and
speak in a foreign language, general users find it very difficult to form individual
words into a sentence when they look [up the words] them up in a dictionary. In
that sense, the current electronic dictionaries and software packages are not [a]
15 true communication tools, although [it] this is [only natural] understandable
considering their purpose.

[0112] Fig. 13 shows [an] the overall structure of [a] the network
system 3010, including [a] the translation system 3016, according to the second
embodiment of the present invention. Here [a] the user terminal 3012 and the
20 translation system 3016 are connected to each other via the Internet 3014.

[0113] The translation system 3016 includes [an] the entrance server 3020 and [a] the translation server 3024[.], which [The entrance server 3020 and the translation server 3024] may be configured as a [united] single node within one site or [may be configured] as separate nodes. When the servers are

5 configured separately [configured], the processes can be distributed among [the servers resulting in a] them to balance[d] or optimize[d] loading. [, and additionally the] This also makes system maintenance [becomes] easier. When the servers are configured as a single node [into one body], the total hardware resources requirement of the system can be [saved] reduced. [It] Choosing

10 which configuration to implement depends on the system design goals and [the] system management policy [which configuration should be chosen].

[0114] In [the figure] Fig. 13, URLa and URLb [denote] represent [respectively a] the network address of the entrance server 3020 and the translation server 3024 respectively. A user [first] accesses the entrance

15 server 3020 first in order to [receive a] use the translation service. The entrance server 3020 receives a[n] user [utterance] command [of the user] and identifies the command's contents [of the utterance]. When the contents [of the utterance] is identified, the entrance server 3020 [sets] transmits the address URLb of the translation server 3024 to the user terminal 3012 and the user

20 terminal 3012 [comes to] accesses the translation server 3024. The translation server 3024 translates the contents of the [identified content of the utterance] command and sends the translated contents back to the user. [Next] The translation server 3024 then receives [another] the next [utterance] command

from the user and sends it to the entrance server 3020. At this time, the translation server 3024 [sets] transmits the address URLa of the entrance server 3020 to the user terminal 3012 so that the user [comes to] accesses the entrance server 3020 again. [Likewise the] This process[es are] is repeated
5 between the entrance server 3020 and the translation server 3024.

[0115] Fig. 14 shows [an] the internal structure of the entrance server 3020. The entrance server 3020 [may be] is an Internet service site such as a Web server or the like. In this case, the entrance server 3020 can [be configured in various manners] have multiple configurations, including [such that] leaving the
10 main functions [remains at] on the server side like a Common Gateway Interface (CGI) implementation, transferring the main functions [are transferred] to the client side like a Java™ [(trademark)] applet or ActiveX™ [(trademark)] implementation, [and an Application Program Interface (API) type, that is, the main functions are] or an Application Program Interface type implementation
15 providing[ed] the main functions on [at] both the server and the client sides [like a Java application]. Both the translation server 3024 [is] and the [same as the] entrance server 3020 can be configured in any of these ways. [this respect.] In Fig. 14, "H" indicates a[n utterance] command, "TL" indicates [a] the target language for translation, "R" indicates a database record [of database], and
20 "UW" indicates an unidentified [utterance] command[, that is] [a[n utterance] command whose [the] contents [of which is] cannot be identified.] [respectively.]

[0116] [A] The [communication unit 3030 of the] entrance server's 3020 communication unit 3030 communicates with the user terminal 3012 and the translation server via the Internet 3014. [An] The [utterance] command obtaining unit 3032 obtains [an] the [utterance] command [inputted] entered by
5 the user and sends it to [an] the [utterance] command search unit 3034. The [utterance] command search unit 3034 looks up the [utterance] command in [a] the user [utterance] command collection 3038 and identifies [the] its contents [of the utterance]. This identification is [conducted] achieved by finding a sentence corresponding to the whole user [utterance] command [as a whole]. The
10 identified [utterance] command is then sent to the translation server 3024 in the form of record number R, and [a] the corresponding record in [a] the dictionary file [built] in the translation server 3024 is retrieved. After identifying the [utterance] command, the [utterance] command search unit 3034 [sets] transmits the address URLb of the translation server 3024 to the user
15 terminal 3012.

[0117] When a sentence [completely] exactly corresponding to the [utterance of the] user's command is not stored in the user [utterance] command collection 3038, a[n almost similar] process similar [is conducted as] to that in the first embodiment is executed. Only the differences between the processes
20 are described below [here]. The [utterance] commands for which a [re-search] second search is conducted [or the utterance for which the re-searching is not] unsuccessfully are recorded as [an] unidentified [utterance] commands in [an] the unidentified [utterance] command file 3040, [, and an administrator of] The

translation system 3016 administrator is then notified of this via [a] the reporting unit 3042 [using an] by electronic mail or [the like] similar process. The administrator [newly registers] enters both a new registration for [such an] the unidentified [utterance] command and a corresponding expression in the user
5 [utterance] command collection 3038 and [the] dictionary file [, and then finally improves the system].

[0118] [A] The target language setting unit 3044 obtains [a] the target language, [that is a] the translation language specified by the user, and passes it to the translation server 3024. Using this input, the translation server 3024
10 [thereby] performs the translation in [a] the language that the user [desired] selected from [among many] the many languages supported.

[0119] Fig. 15 [is an] represents the internal structure of the user [utterance] command collection 3038. The user [utterance] command collection 3038 has a first character column 3050, a user [utterance] command column 3052, and a
15 record column 3054. The Japanese syllabary is written in the first character column 3050 and [assumed utterances] anticipated [of] user[s] commands are arranged in the order of the Japanese syllabary in the user [utterance] command column 3052. The user [utterance] command may be a single word such as "Asa", or [may be] the equivalent of a conversational sentence [or the
20 like]. The record column 3054 has a record number R [of] that corresponds to the dictionary file on [of] the translation server 3024, and [therefore it becomes] serves as an index for referring to the dictionary. For example, in the figure [.]

the index of the user [utterance] command "Arigato" [that means "Thank you"] is R112 [, for instance].

[0120] Fig. 16 [is an] represents the internal structure of the translation server 3024. [A] The communication unit 3060 communicates with the user terminal 3012 and the originating server 3020 via the Internet 3014. The record number R identified [at] in the [utterance] command search unit 3034 of the entrance server 3020 is received [at] by [a] the record obtaining unit 3062 via [a] the communication unit 3060 and passed to a corresponding expression search unit 3064. [On the other hand] Further, the target language obtained [at] by the target language setting unit 3044 of the entrance server 3020 is also passed to the corresponding expression search unit 3064. The corresponding expression search unit 3064 retrieves [a] the corresponding expression, as indicated by SR in the figure, [in a] from the dictionary file 3066 based on the [given] information given [,] and passes[d] it to [a] the formatting unit 3068. The formatting unit 3068 [changes] converts the corresponding expression into a Web page or an electronic mail [form] message, as indicated by P in the figure, and sends it to the user terminal 3012 via the communication unit 3060. [An] The instruction obtaining unit 3070 obtains the next user [utterance] command and sends it to the entrance server 3020, [or] receives [a] the user's choice if [when a plurality of] multiple corresponding expressions exist[s], or receives [a] the user's instruction to paste the corresponding expression into a[n] document or an electronic mail message [under editing] being edited.[,] The instruction obtaining unit 3070 [or] may also performs any other desired processes. The instruction

obtaining unit 3070 [ends up with] finally causes[ing] the user terminal 3012 to access the entrance server 3020, [namely] at URLa, in order to identify the next [utterance] command.

[0121] Fig. 17 [is a] represents the data structure of the dictionary file 3066.

5 The dictionary file 3066 has a record column 3054, an English column 3080, a French column 3082, and other language columns [that are] not shown in the figure. [For] Two choices each are given for the English and French translations of the user [utterance] command "Arigato", [with a] which is record number R112 [, two choices are shown here respectively as its English
10 translations and French translations]. For instance, "Thank you" [for a] is the normal expression and "Thank you very much" [for a] is the polite expression [are on] for the [list of] English translation[s] , allowing [so that] the user[s can] to [select one] choose depending on the situation[s].

[0122] [Now explain a flow of a translation service by the above-mentioned
15 configuration] The flow of the translation service is as follows. Fig. 18 shows [a] the screen displayed when a user accesses the entrance server 3020 to [receive] use [a] the translation service. [There is] A field 3090 is displayed under the service title "VIRTUAL TRANSLATOR", [for] allowing the user to specify [a] the translation language, [or a target language under the service title
20 "VIRTUAL TRANSLATOR" and] English is selected [here] in this example. [Under this field a] An [utterance] input field 3092 is provided beneath the translation language field 3090 along with [a] the statement "Please input a

sentence or word to be translated." The user [inputs] enters "Arigato" and presses [a] the send button 3094. [A series of processes by] The entrance server 3020 [are] executes[d] a series of processes initiated by [this] the user's action, and the target language, [that is] English, and [a] record number, R112, are sent to the translation server 3024. At the same time, the user terminal's 3012 access destination [of the user terminal 3012] changes to the translation server 3024.

[0123] Fig. 19 shows [a] the screen displayed when the user accesses the translation server 3024. The translation server 3024 identifies the records [of] for expressions corresponding to "Arigato" based on the record number R112 and provides [a] the desired translations based on the target language "English" sent from the entrance server 3020. Two translations 3096 corresponding to "Arigato" are shown with simple explanations [as described above]. If the user selects one [from] of these translations by clicking it, various processes can be performed by the instruction obtaining unit 3070 [of] in the translation server 3024, such as pasting the translation into an electronic mail message [under] that is being edited[ing].

[0124] [Fig. 20 is a] The flow chart in Fig. 20 [showing] depicts the [above-mentioned] processes mentioned above. [A] The user sets a target language (S3010) to begin the process. The [utterance] command obtaining unit 3032 then obtains a user [utterance] command (S3012)[.] and the [utterance] command search unit 3034 searches for that [the utterance] command (S3014).

If the user's [utterance] command is found in the user [utterance] command collection 3038 (Y of S3016), the translation server 3024 translates it (S3018), formats it (S3020), and then [provides] relays it to the user terminal 3012 (S3022). [On the other hand] Conversely, if the user [utterance] command is not found in the user [utterance] command collection 3038, and its contents cannot be identified even by a morpheme analysis [and the like] (N of S3016), the [utterance] command is recorded in the unidentified [utterance] command file 3040 (S3024) and the system administrator is notified [of it] (S3026). As mentioned above, the translation system [of] comprising the second embodiment can [realize a] produce translations [to] that [meet] satisfy the user's requirements, while maintaining a high level of responsiveness and improving the ease [to] of [maintain] maintenance.

[0125] The third embodiment of the present invention is [now] explained below. The translation system structure [of] in the present invention can be applied to other types of applications that [a plurality of] users [get] are involved in. Fig. 21 shows [an] the entrance server 3020 for [realizing] a chat room where users from many countries assemble. In the figure, the [same numerals] numbers [are given for] assigned to the components are equivalent to [ones of] those in Fig. 14 and the explanations are omitted [if] where appropriate.

[0126] [A] The chat function block 3102 provides functions to realize a general conventional chat room, such as registering a user's handle or nickname, allowing users to enter[ing] a room, [administering] administration of

users who have entered a room, obtaining users' chat, and broadcasting the chat. The chat function block 3102 has a user attribute obtaining unit that is not shown in the block.[, and the] That unit obtains information [indicating a] specifying the user's [mother tongue] native language, [as] referred to as

5 [mother tongue] native language information, as well as [normal] typical user information. The [mother tongue] native language information may be [inputted] entered by [a] the user or [it may be] detected [which] from the language [is] used to display Web pages on the user's terminal 3012. [Or] The [mother tongue] native language may also be [judged] determined [by] using terminal

10 information, such as the operating system (OS) installed on the user's terminal 3012. The attribute information, especially the user's native language, is indicated by "UI" in the figure. [of] The UI for [all] each user[s], referred to as a member, who has entered [in the chat room] the chat room, [as referred to as members, as indicated by "UI" in the figure, especially the user's mother tongue

15 information] is transmitted to [a] the [mother tongue] native language identifier 3106. The [mother tongue] native language identifier 3106 identifies all target languages, indicated by "TL", based on the [mother tongues] native languages of the [their] members and [send] transmits them to the translation server 3024.

20 **[0127]** The chat function block 3102 [basically] obtains the [utterance] input "H" of each member and sends it to the [utterance] command search unit 3034. [Thus] Therefore, the function of the [utterance] command obtaining unit 3032 [of] in the second embodiment is realized inside of the chat function block 3102.

When [a record number "R" is identified by] the [utterance] command search unit 3034 identifies a record number "R", it is sent to the translation server 3024. The formatting unit 3104 then receives [a] the translation result from the translation server 3024[,] and selects [a] the corresponding expression in the

5 [mother tongue] native language of each member by referring to the member's attribute information "UI". [and] It then formats a display[ed] page and returns it to the chat function block 3102. The chat function block 3102 generates different pages based on [a member's] the members' native languages [basis] and broadcasts them [the pages] to [each] the members [, namely, transmits

10 them at the same time] simultaneously.

[0128] The translation server 3024 [of] in this embodiment is [basically] essentially equivalent to [one of] the translation server in the second embodiment, but the formatting unit 3104 is provided in the entrance server 3020 in this embodiment, as shown in Fig. 21. Therefore the translation

15 server 3024 does not have the formatting unit 3068 and must send[s a] the translation results obtained from the dictionary file 3066 to the formatting unit 3104 of the entrance server 3020. [and the result is formatted there.]

[0129] Fig. 22 illustrates a chat room [that] in which members [with] of different nationalities[y] are participating[e in]. The [names of the] members' names, such as "Tom", are displayed in [a] the member field 3122 and their conversation [progresses] threads are shown in [a] the main field 3120. [A] The field 3124 [for] allowing [the] a member to enter a [an utterance] conversation

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thread and [a] the submit button 3126 to send the [utterance] thread are provided at the bottom. In addition, an "other languages" button 3128 is also provided.

- [0130] Several members, [such as] including ken_123, are [now] presently chatting with each other in the main field 3120. The chat is displayed in Japanese and it [looks] appears [as if] that all members are Japanese. However, while "Taro" is Japanese, "Tom" is American, "Pierre" is French, and the other members are either Japanese, American or French. The screen [of] in Fig. 22 is being displayed on "Taro's" [the] user terminal 3012 [of "taro"].
- 10 [0131] In this situation, the [mother tongue] native language identifier 3106 identifies "Japanese, English, and French" as the target languages. If a[n utterance of a] member's input is Japanese, the content [of the utterance] is identified by the [utterance] command search unit 3034 [of] in the entrance server 3020 and [a] the record number R is sent to the translation server 3024.
- 15 The corresponding expression search unit 3064 [of] in the translation server 3024 identifies [an] the English [expression and a] and French expressions [of] for the Japanese [utterance] input based on the record number R and the target languages "Japanese, English, and French". [and] The expressions are then sent to the formatting unit 3104 [of] in the entrance
- 20 server 3020. The formatting unit 3104 transmits the page data [of] for the screen [of] in Fig. 22 to Japanese members such as "Taro" using the [mother tongue] native language information of each member.

[0132] [On the other hand] Alternatively, the formatting unit 3104 transmits
the page data [of] for the screen [of] in Fig. 23 to the American members such
as "Tom". The screen [of] in Fig. 23 is an English version of the screen [of] in
Fig. 22, and to member "Tom" it appears that all members [looks] are speaking
5 English-[speaking people from the member "tom"]. Likewise, it appears to
member "Pierre" that all members [looks French] are speaking French [people
from the member "pierre"], although [it] that screen is not shown [in the figure].

[0133] The "other languages" button 3128 is provided on the screen as
shown in Fig. 22 and Fig. 23. [The button] It is used when the members want to
10 change the screen [in other] to a language[s] other than their [mother tongue]
native language. For instance, when the member "Taro" presses the button in
Fig. 22, an English [service] screen like Fig. 23 is offered.

[0134] Some [alterations] modifications to this embodiment are [now stated
as follows] discussed below. In the second and third embodiments[,] the user
15 [utterance] input is [performed] entered [on a] in text [basis], but it may also be
[performed] entered using speech recognition. [In this case] With that
modification, the present invention may be utilized as an interpretation tool.

[0135] Although [the] an unidentified [utterance] command is [considered]
defined as a[n utterance] command that [is] cannot be [identifiable] located in
20 the user [utterance] command collection 3038, the definition may be expanded
to include [if the] a command [utterance] that is [identifiable] included in the user

[utterance] command collection 3038 but for which the translation is not complete or not satisfactory [, the utterance may be called an unidentified utterance]. [This] Those cases [is] are also reported to the system administrator so that the dictionary file 3066 can be revised.

- 5 **[0136]** Several choices [are] may be found [after] during translation, as in Fig. 19, so the formatting unit 3068 and other units may select an appropriate expression based on the user's attributes. For instance, [if the user is female ,] a relatively gentle expression may be chosen if the user is female, or a polite expression may be selected [if the user is] for an elder[, a polite expression may
10 be chosen].

[0137] Moreover, the system may be [so] configured [that] to allow users [can] to specify a tone in translation. For example, users may specify "very politely" or "friendly" [and so on], and the formatting unit 3068 and other units [may] will select [a suitable] the appropriate expression.

- 15 **[0138]** Although the user [utterance] command collection 3038 in the embodiments is configured on the assumption that the first user [utterance] command [is] will be made in Japanese [in the embodiments], the user [utterance] command collection may be generated for any other language[s] as well. [After judging the user's mother tongue, it can be determined which] The
20 appropriate language version of the user [utterance] command collection [is used] can be determined once the user's native language is defined.

[0139] The translation system [of] described in the embodiments can be integrated into a user support apparatus or system. Such an apparatus or system may contain an agent to respond to a user's questions, and if the agent cannot understand the question [user utterance], the translation process [of] in the embodiments can be used. [On the other hand,] A collection of the agent's response patterns may also be created for various languages, so that the agent can respond to users who speak different [mother tongues] languages. Extending the system to support multiple languages will not be difficult. [Even if] Only the agent's [utterances] responses [are] will need to be produced in multiple languages, since other data such as action patterns and images can be shared universally. [Therefore, it is not a hard task to extend the system for multiple languages].

[0140] Although the translation example in the embodiments is made between different languages [in the embodiments], the present invention can also be applied to [a] translation between dialects, [or] translation[ing] from [an] archaic to [a] modern expression, or [helping a talk] facilitating discussions between different generations.

[0141] Moreover, the present invention can be applied to a real time translation service for [a] telephone conversations in different languages or discussions at [an] international conferences.

[0142] [The fourth embodiment of the present invention is now explained.]

Fig. 24 shows [an] the overall structure of [a] the network system 4010, including a user support[ing] system 4016, [according to] for the fourth embodiment of the present invention.

5 **[0143]** The user support system 4016 includes [a] the chat server 4020, [a] the recipe server 4026, and [a] the travel server 4028, each of which is connected to the Internet 4014. Thus, the chat server 4020, the recipe server 4026, and the travel server 4028 are configured as separate network nodes, and each of these servers processes the user [utterances] commands
10 and agent [utterances] responses [in] with respect to [each] their specialized field. For instance, the chat server 4020 processes general greetings such as "Hello", [or the like, and] the recipe server 4026 processes [utterances about] commands regarding cooking such as "Recommend a recipe", and the travel server 4028 processes [utterances about] commands concerning travel such as
15 "Recommend a domestic travel destination".

[0144] In this embodiment, the user contacts the chat server 4020 [is the server that is] first, [accessed by the user who utilizes] upon initially accessing the user support system 4016, [.] and the chat server 4020 processes the initial [utterance of the] user command. In this sense, the chat server 4020 is also
20 referred to as "an originating server". In the following, [such] servers such as the chat server 4020, the recipe server 4026, and the travel server 4028 are

[each] generally referred to as [a] specialized servers, and agents [placed] implemented on these servers are referred to as expert agents.

- [0145] Each [of the] specialized server[s] includes [the] a first block [which] that has an electronic collection of user [utterances,] commands and identifies
- 5 [a] the contents of a given user [utterance] command, and [the] a second block [which] that has an electronic collection of action patterns for [an] the agent's use in [for] responding to user [utterances,] commands [and enables the agent to respond to the user utterance]. The user [utterance] command collection includes a general [utterance] command library that stores general user
- 10 [utterances,] commands and a specialized [utterance] command library that stores [utterances] commands related to the expert agent's specialized field [of the expert agent]. The specialized server identifies the general user [utterances] commands and the [utterances] commands related to its specialized field, [and] enabling[es] the expert agent to respond to users.
- 15 [0146] The user [utterance] command collection of the originating server 4020 stores the specialized [utterance] command libraries of all specialized servers in the user support system 4016. The originating server 4020 receives [the] all of the [utterance] commands that any of the other specialized servers cannot identify [,] and [find] locates [a] the specialized
- 20 server that can process the [utterance] command by matching it [in] with the user [utterance] command collection. When a specialized server that can process the [utterance] command is found, the process is taken over by [the]

that specialized server [,] and the specialized server continues to process the user [utterances] commands as long as the user talks about the specialized field.

[0147] Since the abstract of the process in Fig. 24 is almost [the same as] identical to that in the first embodiment, [and] only the differences are explained here.

[0148] When the user [makes] inputs a new [utterance] normal command [, that is a normal utterance,] to the expert agent, the [utterance] command is captured and checked in the user [utterance] command collection on [of] the specialized server. When the contents of the [utterance] command is identified, the specialized server sends [a] the URL for another page on that server to the [Web browser on the] user terminal's 4012 Web browser [to display another page within the identical server], and [at the same time] concurrently retrieves an agent action from the agent action collection to perform [a] the response process. As long as the user's normal [utterance] command is identifiable at the specialized server, the specialized server repeats [a] the sequence of processes; [of] obtaining [a] the user's [utterance] command, [the expert agent's] responding to the user through the expert agent [by], and requesting or prompting the user [to make] for another [a] normal [utterance] command.

[0149] When the contents of the [utterance] command [is] cannot be identified, the [utterance] command is sent to the originating server 4020, as

denoted by URLs. The originating server 4020 then identifies a specialized server [agent] to respond to the [utterance] command by matching it with the user [utterance] command collection and sends the URL [of] for [the] that specialized server [agent] to the user terminal 4012. [Thus,] The subsequent
5 process is thereby transferred to the specialized server and the second block of the specialized server performs the subsequent response processes. [The] A [utterance] command that cannot be identified by the originating server 4020 is reported to [a] the system administrator as described below.

[0150] Thus, each [of] specialized server converses with the user on [a] the
10 topic in [each] its specialized field. Although the originating server [itself as a chat server] converses with the user on [a] topics related to [a] chat, [the server] it also [has a] functions [of] to identify[ing] user [utterances] commands on topics related to the specialized fields [of] handled by other specialized servers and [allocating the access destination of] provides the user terminal 4012 [to]
15 with the address of the [a] appropriate [specific] specialized server.

[0151] The advantage of this configuration is that a third party can independently develop a [specialized] server for their specialized field [independently]. [An administrator of such] The [a] specialized server's administrator gets [a] the general [utterance] command library from the system
20 administrator and develops [their original] a unique specialized [utterance] command library and agent action library. [Therefore,] This promotes the development of [specialized] servers for [various] specialized fields [is

promoted] and allows a[n overall] system that covers many specialized fields [can] to be developed in a relatively short time. The general [utterance] command library may be provided to each specialized server as packaged software, or a library site [to] offering the general [utterance] command library
5 may be provided [and the] with [access right to the library site may be given to the] specialized server administrators receiving access rights. [The latter case can] Using a library site [save an] eliminates the effort required to provide the latest [package] software package to the specialized servers whenever the general [utterance] command library is updated.

10 **[0152]** Fig. 25 shows [an] the originating server's 4020 internal structure [of the originating server 4020]. The originating server 4020 [of] in this embodiment has functions similar to [that of] those in the first embodiment. Only [different] the functional[s] differences [are] will be explained [here].

[0153] When a[n utterance] command is identified using the index file 4036, a
15 file descriptor [of] for the [a] file [describing] containing information such as [a] the URL of [a] the specialized server that should respond to the [utterance] command is identified in the index file 4036[, and] The file [itself] built into the user [utterance] command collection 4038 is then opened and [a] the [proper] URL is [obtained] retrieved.

20 **[0154]** If the URL [obtained] retrieved from the user command collection 4038 points to the specialized server, the URL is forwarded to [an] the agent

controller 4060. [as an example of the second block.] The agent controller 4060
then forwards the URL to the [browser on the] user terminal's 4012 browser via
the communication unit 4030 and retrieves [an] the agent action that
corresponds[ing] to the URL from the agent action collection 4062. Finally, the
5 agent controller 4060 [and] performs the required agent action.

[0155] If the URL [obtained] points to [another] a different specialized server,
the URL is forwarded to the browser on the user terminal 4012 via the
communication unit 4030 and the user terminal 4012 in turn accesses the
specialized server.

10 **[0156]** When a statement [exactly] corresponding exactly to the [utterance of
the] user's input has not been previously stored in the user [utterance]
command collection 4038, [the] a procedure similar to that [of] in the first
embodiment is [taken] executed. [Here] Only [different] the procedural
differences [points] are described below.

15 **[0157]** When the system administrator is notified of an unidentified [utterance]
command, he/she reports the contents of the [utterance] command to [an
administrator of a] the specialized server's administrator so they can [to]
respond to the [utterance] command and [requests to] develop a response
process [of its] for the specialized server's expert agent. The [administrator of
20 the] specialized server's administrator registers [anew such] the unidentified
[utterances] command and the URL of [a] the page [of] on the specialized

server used to respond to the [utterance] command. Both items are stored in the user [utterance] command collection 4038 of [their own] the specialized server [,] and [registers] the [indexes of the utterance] command's index is registered in the index file 4036[, and then finally] Lastly, the specialized

5 server's administrator designs processes, including [utterances for] the expert agent's responses, on [that] the response page. After [the] development is complete[d], the [administrator of the] specialized server's administrator notifies the originating server 4020 of [a] the newly developed [utterance] response, its index, and [a] the URL of the page on [of] the specialized server [to respond]

10 that contains the response. The administrator of the originating server 4020 then registers the [notified] contents in the index file 4036 and the user [utterance] command collection 4038.

[0158] Fig. 26 [is an] represents the internal structure of the index file 4036[.] and Fig. 27 [is an] represents the internal structure of the user [utterance]

15 command collection 4038. The [structure of the] index file 4036 structure is the same as [one of] that in the first embodiment, but two separate index files may be provided, [respectively] one for the general [utterance] command library and one for the specialized [utterance] command library. [or one] A single index file containing both libraries may also be [provided] used however. The [structure

20 of the] user [utterance] command collection 4038 structure is [almost same as] identical to that [of] in the first embodiment, but [and here] the user [utterances] commands 4114 [linked to] associated with the travel server 4028 [are put together into one group] have been added to the collection.

[0159] Fig. 28 illustrates [an] the internal description of the access information file 4046. As in the first embodiment, when "user2" visits the chat server 4020, the chat agent [starts] begins with a[n utterance] greeting prepared for first-time visitors. When "user1" visits the chat server 4020, the chat agent produces a[n
5 utterance] greeting prepared for [revisitors] returning visitors.

[0160] Fig. 29 [is an] represents the internal structure of the agent action collection 4062. The URL identified in the originating server's 4020 [utterance] command search unit 4034 [of the originating server 4020], for instance [,] URLa1 or URLa2 corresponding to the [utterance] greeting "Hello" as in Fig. 27,
10 is forwarded to [an] the agent behavior collection 4062 via the agent controller 4060. The [structure of the] agent action collection's 4062 structure is [the same as] identical to that [of] in the first embodiment, except it does not contain the user [utterance] command obtaining unit 4074.

[0161] [A] The library provider 4048 manages the general [utterance]
15 command library and provides [the general utterance library] it to the [administrators of] other specialized server[s] administrators, either off-line or online. For instance, the general [utterance] command library can be provided off-line as a software package [, and can be provided] or online by offering an access right for [a] each server that stores the library. In this embodiment,
20 when the library provider 4048 receives a request from any [other] specialized server, it retrieves the general library from the user [utterance] command collection 4038 and transmits it to the specialized server via the communication

unit 4030. The library provider 4048 may also send and receive a specialized [utterance] command library [as well as the general utterance library]. For instance, when any other specialized server develops a new specialized [utterance] command library, the library provider 4048 may receive [the] that
5 specialized [utterance] command library and register it in both the index file 4036 and the user [utterance] command collection 4038. Thereby the maintenance of the user support system as a whole becomes easier.

[0162] [Now explain] The structure and behavior of the specialized servers, other than the originating server 4020, [such as the recipe server 4026 and the
10 travel server 4028] are explained below. The recipe server 4026 is explained here to serve as an example, [but] since the other specialized servers [are the] function in the same manner. The internal structure of the recipe server 4026 is almost [the same as one of] identical to that of the originating server 4020 [of] in Fig. 25. Therefore, [a sequence of] the process sequence [is] explained here
15 [mainly] focuses[ing] primarily on [different] the functions that differ from those of the originating server 4020.

[0163] First, when the recipe server 4026 is determined to be capable of processing the user [utterance] command obtained at the originating server 4020, [is judged to be processible at the recipe server 4026, a] the URL
20 [of] for the appropriate [a] page within the recipe server 4026 is [forwarded and set] sent to the [browser on the] user terminal's 4012 browser. The browser then accesses the recipe server 4026 and requests that the agent

controller 4060 [to get] retrieve [a] the corresponding page via the communication unit 4030. The agent controller 4060 retrieves the corresponding page from the agent action collection 4062 and transmits [the] that page to the user's browser, [and] then executes other necessary
5 processes[, as the originating server 4020 does.]

[0164] [Next] Subsequently, the recipe server 4026 waits [until] for the user to [makes] enter the next [utterance] command. When the user [makes an utterance] enters the command, [as the originating server 4020 does,] the [utterance] command obtaining unit 4032 obtains the [utterance] command and
10 the [utterance] command search unit 4034 identifies [the utterance] it, following the same process the originating server 4020 uses. The recipe server 4026 has a general [utterance] command library and a specialized [utterance] command library related to cooking, and can identify the user's general [utterances] commands and cooking-related [utterances] commands [of the user], but cannot
15 identify any other specialized commands [utterances]. If the [utterance] command search unit 4034 can identify the user's [utterance] command, the agent controller 4060 executes the response processes. If the user [utterance] command cannot be identified, the [utterance] command is recorded as an unidentified [utterance] command in the unidentified [utterance] command
20 file 4040, and the reporting unit 4042 sends the [utterance] command to the originating server 4020. The[n] originating server 4020 then matches the [utterance] command [is matched] with [the] its user [utterance] command collection 4038 [in the originating server 4020] and [a] the specialized server

that should process the [utterance] command is identified, [, and the] Then that
specialized server [in turn] executes the subsequent process. When the
[administrator of the] recipe server's 4026 administrator finds a cooking-related
[utterance] command among the unidentified [utterances] commands recorded
5 in the unidentified [utterance] command file 4040, he/she develops [a] the
response process [to the] for that [utterance] command and registers it in the
recipe server 4026. [Thus] This[,] allows the agent processes [can] to be easily
enhanced. In this embodiment, the unidentified [utterances] commands are
recorded in the unidentified [utterance] command file 4040 of each specialized
10 server and [that of] the originating server 4020, [, but may be] It is also possible
to record[ed] them only in either the specialized servers or the originating
server 4020.

[0165] The library provider 4048 accesses the library site that contains the
general [utterance] command library at a predefined interval, [and] obtains the
15 [latest] most recent general [utterance] command library, and [then] registers it
[to] with the index file 4036 and the user [utterance] command collection 4038.
The library provider 4048 also sends [a] the recipe server's 4026 newly
developed specialized [utterance] command library [of the recipe server 4026]
to the originating server 4020. Thus each specialized server is independently
20 maintained, [resulting in] enhancing the user support system as a whole.

[0166] The internal structure of the user terminal 4012 for this embodiment is
the same as [one] that of the first embodiment. The screen displayed on the

user terminal 4012 is also the same as [one exemplified] that demonstrated in the first embodiment. However, in Fig. 12, when the user entered [another] the normal [utterance] command [of the user] "I would like to look at flight schedules" [is inputted] and sent it to the recipe server 4026, the recipe

5 server 4026 [cannot] could not identify [this utterance] it in its user [utterance] command collection 4038 and therefor sent[ds] it to the originating server 4020 as an unidentified [utterance] command. The originating server 4020 then identified[s] the travel server 4028 that [can] could process [this] the [utterance] command by matching it with [its] the travel server's 4028 user [utterance]

10 command collection. The travel server 4028 then initiated[s] the subsequent processes.

[0167] [Some alterations] Modifications to the preceding process are [now] stated below. Although the chat server 4020 [serves] functions as [an] the originating server in this embodiment, any other specialized server [may serve

15 as the originating server] could have been used for that purpose[, or a plurality of] or multiple originating servers [may be provided] could have been used. Instead of using a specialized server [serving] as an originating server, a [an] dedicated originating server [may be provided] might have been used apart from the specialized servers. Moreover, instead of [providing] employing an

20 originating server, [the utterance] a command that [is] cannot be identified at [a] one specialized server may be circulated among the other specialized servers [and it may be inquired whether the utterance is processible at each of the

specialized servers, and then] to determine which of them [a specialized server that] can process it [the utterance may be identified].

[0168] Although the originating server 4020 identifies the user [utterance] command and sets [a] the URL [of] for [a] the specialized server's page to
5 respond to the [utterance] command in this embodiment, the originating server 4020 may [only] simply identify [a] the specialized server [to] that will process the user [utterance] command and allow the specialized server [may] to identify the contents of the [utterance] command and set [a] the URL of [a] the corresponding page to respond to the user terminal. [Thereby] This process
10 would reduce the load on the originating server 4020 [can be reduced].

[0169] The fifth embodiment of the present invention is [now] explained below. Since [the] Internet access [at] from the home has recently become [been] common [recently], [WWW (] the number of World Wide Web (WWW) users [are growing] has grown rapidly. This number has increased further
15 because of the convenience [As it is convenient for the users at home to] of accessing [to a] huge amounts of information from all over the world[, the number of users is further increasing.] But, while it is very likely that [necessary] the information [that] users want exists somewhere within the [huge number of Web sites] ever expanding Internet,. However] the number of Web
20 sites or pages has become too large for users to find [out such desired] that information.

[0170] [Being aware of the above situation, the] System administrators of portal sites with search engines are aware of this problem and have been trying hard to make their search methods more sophisticated. [by] The use[ing a] of directory trees, [for] is an example of the improved search methodologies.

5 [Therefore] With a directory tree search, [the] users can efficiently [find necessary] separate the information they want [out of] from the existing flood of [information] material by [using] defining search conditions such as logical OR and logical AND within a specific topic or category already [pre] defined by the portal sites.

10 [0171] [It is,] However, it is extremely difficult for general users to [exploit] employ these highly complicated search conditions, since most of them are [beginners in computers] new to computing. [In] Additionally, [since] the information available on the Web has a complicated hierarchy and [in] sometimes [cases] it is difficult for users to find [desired] the information they
15 want in that [out of the] hierarchy. The [oversupply] information surplus [of information] may [spoil] destroy its utility[zation] as both the number of [Web sites] beginners joining the Web and the number of Web sites [is still] continue
to increase[ing and more and more beginners are joining the Web services].

[0172] Fig. 30 shows [an] the overall structure of [a] the network
20 system 5010₁ including [a] the user support system 5016 according to the fifth embodiment of the present invention.

[0173] The user support system 5016 includes [a] the originating server 5020, [a] the chat server 5024, [a] the recipe server 5026, and [a] the travel server 5028. All of these servers are connected to the Internet 5014. The originating server 5020 includes an electronic collection of [users'] anticipated user [utterances] commands and a[n utterance] command identification block that identifies the contents of a given user [utterance] command. [This] The [utterance] command identification block is shared by the other servers in the user support system[, namely, the chat server 5024, the recipe server 5026, and the travel server 5028.] The chat server 5024, the recipe server 5026, and the travel server 5028 each include a collection of action patterns [of] used by the first agent [to] in responding to [the utterance] commands. [and have] as well as a response block that enables the first agent to respond to the user [utterance within each server node].

[0174] As in the first embodiment, the originating server 5020, the chat server 5024, the recipe server 5026, and the travel server 5028 are configured as separate network nodes. In the following, [such servers as the chat server 5024, the recipe server 5026, and the travel server 5028 are each] these types of servers are generally referred to as [a] specialized servers, and the agents [placed] hosted on them [these servers] are referred to as expert agents.

[0175] [The] A user [utterance] command is sent to the originating server 5020 and its content is identified in the user [utterance] command collection. [Then] An agent [to respond to the utterance] is then identified to

respond to the command [according to] based upon the contents and [a] the response block executes the response process [is executed by the response block]. An agent on the chat server 5024, [as also referred to as] or the "[a] chat agent", responds to general greetings such as "Hello" [, and] Likewise, [an agent on the recipe server 5026, as also referred to as] the "[a] recipe agent" [,] responds to [utterances] commands related to cooking, such as "Recommend a recipe," and [an agent on the travel server 5028, as also referred to as] the "[a] travel agent" [,] responds to [utterances] commands related to travel[s], such as "Recommend a domestic travel destination." [,] Each expert agent [finds out] determines what kind of information the user wants [during a talk] by interacting with the user, and [supports] then helps them [user to search appropriate information] find it among [a] the large amount of available information.

[0176] [In the user support system of] In this embodiment's user support system, [while the second agent responds to the user,] the first agent will appear[s] and interrupt[s] the dialogue between the second agent and the user, [so that] initiating a conversation between the two agents [is initiated]. [Through the dialogue between the agents,] The user can gain insight into the ongoing processes [can be made visible] or [some] be presented with alternatives [can be presented to the user] through this dialog between the agents. [Like a rapid-fire comic dialogue] Additionally, [such a] the dialogue [gives fun and makes users relaxed] can be used to entertain and relax the user.

[0177] For instance, the user says, "What's new?" and the chat agent responds [to the user] saying, "A [site of a store] shopping site offering a good dumpling is open." At this time, the recipe agent reacts to the key word "dumpling" and says, "Don't talk about dumplings without me."₁ Then₁ if the user is interested in dumplings, the user may say[s], "Tell me a recipe for a good dumpling₂" and a [talk] conversation with the recipe agent [is carried on] ensues. Thus, when a specific keyword appears[,] in the dialogue, an expert agent specializing in the field automatically appears and talks to the user so that the process can [smoothly] continue smoothly. While the system waits for a[n utterance] command from the user, the agents may continue to talk to each other. For instance, when the chat agent says, "Don't butt in with your joke when I am talking.₁]" the recipe agent may [say back] reply, "Don't say that. Let me join in." so that it could [make] relax the user [relaxed].

[0178] The [utterances] commands [to which] that the first agent reacts to are not necessarily [utterances] commands that relate[d] to its specialized field. For instance, while the user and the chat agent talk about going to see cherry blossoms, the recipe agent may appear unexpectedly and interrupt saying, "Pudding rather than flowers. Would you like to know how to make a good pudding?"

[0179] The abstract of the process in Fig. 30 is almost the same as in the first embodiment, [and] so only the differences are explained [here] below.

[0180] When an expert agent responds to [the] a user [utterance] command, its content is sent to the originating server 5020, as denoted by URLs in Fig. 30. The originating server 5020 includes an additional [utterance] command collection, that is, a collection of [assumed or] anticipated [utterances] commands to which other agents should respond. The agent [utterance] response is matched with the additional [utterance] command collection, [and] to identify the[n an] agent that should respond. [to the utterance is identified.] If an agent [to respond to the utterance] is not identified, the system will wait for the next user [utterance] command. If an agent is identified [to respond to the utterance], the URL [of] for that agent's [the] specialized server [of the agent] is forwarded to the browser on the user terminal 5012, and [a] the expert agent performs the response process [is performed by the expert agent] as it is [mentioned] described above. [and] The system then waits [until the user makes] for the next [utterance] user command.

15 [0181] When [the] a user [makes] enters a new [utterance], [that is a] normal [utterance] command[,] in response to the expert agent, the [utterance] command is captured and sent to the originating server 5020. The originating server 5020 identifies [again an] the expert agent that should [to] respond to the [utterance] command[,] and [then] transmits the URL of [its] that expert agent's specialized server to the user terminal 5012. [Again,] The following sequence is repeated:

1. the originating server 5020 identifies [a] the user [utterance] command;

2. the originating server 5020 identifies [a] the specialized server
[appropriate] that should process [to] the identified [utterance] command;

3. [an] the expert agent on the specialized server responds to the
user;

5 4. any other expert agent responds to the expert agent [utterance]
response (this step is omitted if no other expert agents are found to respond [is
found, this step will be omitted]); and

5. the expert agent requests, or prompts the user to make, a normal
[utterance] command.

10 **[0182]** Thus, the process always returns to the originating server 5020 and
then [restarts from there] begins again.

[0183] Fig. 31 shows [an] the internal structure of the originating server 5020.
The originating server 5020 [of] in this embodiment has functions similar to
[that] those [of] in the first embodiment, so only the differences [t functions] are
15 explained [here] below.

[0184] In this embodiment, [an] the [utterance] command obtaining unit 5032
not only captures a[n utterance] command from [a] the user and sends it to [an]
the [utterance] command search unit 5034, [but] it also captures [an utterance]
the response from [an] the expert agent and sends it to the [utterance]
20 command search unit 5034 as well.

[0185] [An] The additional index file 5037 is generated by arranging the anticipated [utterances] commands stored in [an] the additional [utterance] command collection 5039 in the order of the Japanese syllabary. As [it] is the case with the index file 5036, since the first character of the agent [utterance] response is checked with this index file 5037, the search for the agent [utterance] response can be conducted [with great speed] quickly, even if the additional [utterance] command collection 5039 is very large.

[0186] When a[n utterance] command is identified using the index file 5037, [a] the file descriptor [of] for [a] the file [describing] containing information such as [a] the URL of [a] the specialized server that should respond to the [utterance] command is identified in the index file 5037, and the file [itself built] in[to] the additional [utterance] command collection 5039 is opened [and] to extract the proper URL [obtained]. The additional [utterance] command collection 5039 has, as does the user [utterance] command collection 5038, [has] one file devoted to each [utterance] command. The extracted URL [obtained] is then forwarded to the [browser of the] user terminal's 5012 browser via the communication unit 5030 and the browser in turn displays [a] the response from the expert agent.

[0187] As [it] is the case with the user [utterance] command, when a statement exactly corresponding to the agent [utterance] response is not found in the additional [utterance] command collection 5039, the [utterance] command search unit 5034 breaks [down] the agent [utterance] response into morphemes

[by] using a known method and finds the most probable [utterance] command from the additional [utterance] command collection 5039 by [re-]searching again [employing] using a logical AND of the morpheme's nouns [of morphemes] or by similar processes. [Even if a probable utterance cannot be found,] It is not
5 necessary to notify the system administrator even if a probable command cannot be found [of this]. [It is because the] Although one of the expert agents must reply to a user [utterance] command, [must be responded by any one of expert agents, but] there is no requirement for an agent to react to another agent's response [the agent utterance does not have to be responded by
10 another agent]. It is also unnecessary to provide a large [amount] number of [utterances] responses to which agents should react [respond]. It [will be good enough] is sufficient to provide [a certain amount of] such [utterances] responses to [such] the [an] extent that another expert agent may appear [as frequently] with a frequency [as it] that does not interfere with the user. In
15 addition, the user may set a level indicating how frequently the other agents may [respond] react to [the] agent [utterances] responses. In some cases[,] the user may prohibit [the] any agent[s], other than the one presently conversing [agent], from appearing on the screen.

[0188] [A] The library provider 5048 provides the user [utterance] command
20 collection to [a] third [party] parties both off-line [or] and online. For instance, the user [utterance] command collection can be provided off-line as a software package[, but] However, in this embodiment it is provided online via the communication unit 5030. When the library provider 5048 receives a request

for the user [utterance] command collection [via] through the communication unit 5030, it retrieves the user [utterance] command collection 5038 and transmits it via the communication unit 5030. At this time the index file 5036, the additional index file 5037, and the additional [utterance] command collection 5039 may also be transmitted. By offering the user [utterance] command collection, [a] new development by [a] third parties[y] can be promoted and [as a result] the system as a whole can be enhanced.

[0189] When [the administrator of each] a specialized server's administrator develops a new agent action, [a] the URL of [a] the user [utterance] command and its corresponding agent action is sent to the originating server 5020. The library provider 5048 then receives the information from the specialized server and registers the information in the index file 5036, the additional index file 5037, the user [utterance] command collection 5038, and the additional [utterance] command collection 5039. [Thereby] This improves the accuracy of the user [utterance] command collection [can be improved] and makes enhancing the agent functions [can be enhanced easily] much easier.

[0190] The internal structure of the index file 5036, the user [utterance] command collection 5038, and the access information file 5046 are the same as those [of] in the first embodiment.

[0191] Fig. 32 [is an] represents the internal structure of the additional index file 5037. Fig. 33 [is an] represents the internal structure of the additional

[utterance] command collection 5039. The additional index file 5037 has a Japanese syllabary column 5200, an agent [utterance] response column 5202, and a file name column 5204. The agent [utterances] responses are arranged in the order of the Japanese syllabary as the user [utterances] commands are in
5 the index file 5036.

[0192] The additional [utterance] command collection 5039 has a file name column 5204, an agent [utterance] response column 5202, and a page column 5220 [of a] indicating which specialized server [to] should respond. For instance, [a] the page of [a] the specialized server to respond to the agent
10 [utterance] response "rainy season" is URLa255, and [a pair of] the [utterance] response "rainy season" [and] paired with URLa255 forms [a] file f703. The agent [utterances] responses [are gathered] for each specialized server are collected,[,] and the additional index file 5037 and the additional [utterance] command collection 5039 are linked together [via] using file names. For
15 instance, the file name f805 is recorded corresponding to the [utterance] response "dumpling" in the additional index file 5037[,] and the file name points to the file f805 in the additional [utterance] command collection 5039.

[0193] The [internal structure of the] chat server's 5024 internal structure, as an example of a specialized server, is the same as that [of] in first embodiment.
20 The [internal structure of the] user terminal's 5012 internal structure is also the same as that [of] in the first embodiment.

- [0194] Fig. 34 shows [a] the screen 5150 displayed when a user has activated the user terminal 5012. [A] The local agent 5152 appears and says, "Welcome! Let's chat." The user [inputs] enters "Hello" in [an] the input field 5154 and presses [a] the send button. The [inputted] statement "Hello" is sent to the originating server 5020 as a process [starting] initiating [utterance] command [to the originating server 5020], [and] the chat server 5024 is identified as [a] the specialized server on the basis of the contents of the statement, and the user terminal 5012 is given access to [a corresponding] the appropriate page.
- 10 [0195] Fig. 35 shows [a] the screen 5150 displayed when the user [makes an] enters a command [utterance]. Here [a] the chat agent 5156 appears, but the same image as the local agent 5152 is used in this embodiment, [and thus] so the conversation appears to continue[s with no apparent seams] seamlessly. The chat agent 5156 says, "Hello. I am a chat agent. Call me Peako." When
15 the user inputs "Tell me today's new recipes at cooking sites," and presses send[s it], the [utterance] command is [obtained] received at the originating server 5020 and [a] the page [of] for the recipe server 5026 is [anew] identified. The URL of the identified page is then sent to the user terminal 5012 and the user terminal 5012 is given access to the page.
- 20 [0196] Fig. 36 shows [a] the screen 5150 displayed when the user asks for a recipe. [A new] The recipe agent 5160 appears and says, "[OK] Alright! I am a recipe agent. Trust me," [and] then accesses [a] the cooking site that the user

has registered and obtains [some] the new recipes [at the] from that site. In order to prevent the user from getting bored during the search, the agent says, "I am going to search now. Wait a moment, please." to [tell] inform the user that the search[ing] is being executed. [When] Once the search is completed, the

5 browser is given access to a page [to] displaying [a] the search result.

[0197] Fig. 37 shows [a] the screen 5150 that displays[ed] the search result. The recipe agent 5160 says, "Today's new recipes are Italian dishes. Please click for cooking details."[,] and the recipe titles 5170 obtained through the search are displayed. Each of the titles 5170 has a link to a page describing the

10 recipe in detail. The [utterance of the] recipe agent's 5160 response is sent to the originating server 5020 and matched with the additional [utterance] command collection 5039. As a result, it is [found] determined that [a] the travel agent might react to the word "Italian". The browser in turn accesses [a corresponding] the page [of] corresponding to the travel server 5028 and the

15 travel agent appears.

[0198] Fig. 38 shows [a] the screen 5150 that is displayed when the travel agent appears. The travel agent 5180 says, "What about joining an Italian gourmet tour to taste genuine Italian cuisine?" The user may ignore the travel agent 5180 and continue to talk with the recipe agent 5160, or may initiate an

20 [talk] exchange with the travel agent 5180.

[0199] Thus, each expert agent can serve both as the second agent that talks mainly [talks] with the user and as the first agent that interrupts the dialogue between the user and the second agent.

[0200] Although the [utterance] command identification block is shared at the
5 originating server 5020 in this embodiment, each specialized server may include both [the] a [utterance] command identification block and [the] a response block. In such a configuration, both the user [utterance] command collection and the agent action collection can be managed independently for each specialized field, [and] making the management and maintenance of the
10 agent [will become] easier. In any configuration[s], a central server may be provided to process all of the [utterances] commands.

[0201] Fig. 39 shows [an] the overall structure of [a] the user support apparatus according to the sixth embodiment. The user support apparatus [of] in this embodiment is not a server that offers services via [a] the network, but
15 rather a stand-alone apparatus that offers services to a user [who uses this apparatus]. The components designated with the same numbers [numerals as] used in the fifth embodiment perform similar functions in this embodiment.

[0202] The agent on this apparatus performs functions similar to those of the local agent [of] in the fifth embodiment. The agent obtains the user [utterance] command [inputted] entered through [a] the user interface 5138 [at a] with the
20 [user utterance] command obtaining unit 5032[,] and identifies the contents of

the [utterance] command [at] using the [utterance] command search unit 5034.
[An] The agent controller 5070 retrieves [a] the page corresponding to the user
[utterance] command, which is [a page] stored in the agent action
collection 5062 [of this apparatus], and [a] the response process is executed.

5 **[0203]** The user may also converse with an external expert agent via the
communication unit 5030. While the user is [talking] speaking with the external
expert agent, the [response of the] expert agent's response is displayed via the
user interface 5138 and is captured by an agent [utterance] response obtaining
unit 5031. If the [utterance of the] expert agent's response is matched with a[n
10 utterance] response recorded [at] in the additional [utterance] command
collection 5039, another agent [of this] on the apparatus appears and responds
to the user.

[0204] Fig. 40 shows [an] the overall structure of the user support apparatus
according to the seventh embodiment. This user support apparatus is also a
15 stand-alone apparatus [as] like that in [one of] the sixth embodiment. [The
different point is that] However, the apparatus [of] in this embodiment [has]
implements both the first agent 5300 and the second agent 5302, [implemented]
and the [utterance] command identification block and the response block are
symmetrically provided for the first and [the] second agents. The first and [the]
20 second agents converse with the user [as] like the expert agents [of] in the fifth
embodiment. While the first agent is [mainly talking] leading the conversation
with the user, the second agent [timely] reacts to the dialogue at appropriate

times. [On the other hand] Conversely, while the second agent is [mainly talking] leading the conversation with the user, the first agent [timely] reacts to the dialogue at appropriate times.

[0205] Although the user [utterance] command collection and the additional
5 [utterance] command collection are separately provided in this embodiment, the additional [utterance] command collection may be incorporated into the user [utterance] command collection. [In this case] When the command identification block's process enters the final stage, the user [utterance] command and the agent [utterance] response may be matched with the user [utterance] command
10 collection without discriminating between them[the two, when the process of the utterance identification block comes to at least a final stage].

WHAT IS CLAIMED IS:

1. A user support system comprising:
- a first block which has an electronic collection of user utterances, and identifies a content of a given user utterance; and
 - a second block which has an electronic collection of action patterns for an agent, for responding to user utterances, and enables the agent to respond to the given user utterance;
- wherein the user utterance collection and the agent action collection are separately constructed by configuring the first block and the second block separately.
2. The system of claim 1, wherein the system is connected with a user terminal via a network, and the first block and the second block are configured as different network nodes.
3. The system of claim 1, wherein the system includes a plurality of the second blocks, and each of the second blocks offers a specialized service to the user.
4. The system of claim 1, wherein the first block includes:
- an utterance search unit which searches the utterance of the user in the user utterance collection; and

a reporting unit which notifies a system administrator when the user utterance is not found in the user utterance collection.

5. The system of claim 1, further comprising a recording unit which obtains maintains a record of the user's access to the system, wherein the second block chooses one from a plurality of choices of the actions of the agent to respond to the user utterance depending on a situation of the user's access.

6. The system of claim 1, wherein the second block chooses one from a plurality of choices of the actions of the agent to respond to the user utterance depending on an attribute of the user.

7. The system of claim 4, wherein the first block further includes an index storing unit that stores an index of contents of the user utterance collection, and the search unit initially searches the given user utterance for the index storing unit.

8. A user support system, comprising:
an electronic collection of user utterances;
an index storing unit that stores an index of contents of the user utterance collection;
an utterance obtaining unit, which obtains an utterance inputted by the user;

an utterance search unit which identifies a content of the obtained utterance by conducting a search using the index; and

an electronic collection of actions of an agent for responding to the identified utterance,

wherein a response to the identified utterance is performed by the agent.

9. The system of claim 8, wherein the utterance search unit identifies the content of the obtained utterance using a full text search.

10. The system of claim 8, further comprising a reporting unit which notifies a system administrator when an appropriate response to the obtained utterance cannot be conducted.

11. A translation system comprising:

a first block which has an electronic collection of user utterances, and identifies a content of a given user utterance; and

a second block which has an electronic dictionary file for translating the user utterance, and provides the user with an expression corresponding to the utterance in another language;

wherein the first block and the second block are configured as different nodes accessing a network so that the user utterance collection and the dictionary file are separately constructed.

12. The system of claim 10, wherein the first block includes:

an utterance search unit which searches the utterance of the user in the user utterance collection; and

a reporting unit which notifies a system administrator when the user utterance is not found in the user utterance collection.

13. A translation system comprising:

an electronic collection of user utterances;

an utterance search unit which identifies a content of a given user utterance using the user utterance collection;

a dictionary file which describes correspondence between multiple languages for anticipated utterances of the user;

a function block which offers a predefined service to the user;

a target language setting unit which sets a language that is used by any number of users who assemble virtually to receive the offered service as a target language for translation; and

a corresponding expression search unit which compares a content of an utterance given by any one of said users, which is identified by the utterance search unit, with the dictionary file and identifies an expression corresponding to the utterance in the target language;

wherein the function block offers the corresponding expression embedded in said service.

14. The system of claim 13, wherein the function block customizes the service for each user on a target language basis, by embedding the corresponding expression in each user's language into the service offered to each user.

15. The system of claim 13, wherein the user utterance collection and the dictionary file are configured as different nodes accessing a network so that an identification of the content of the utterance and an identification of the corresponding expression are processed in a distributed manner for the service requested by the user via the network.

16. A user support apparatus comprising:

a first block which has an electronic collection of user utterances, and identifies a content of a given user utterance; and

a second block which has an electronic collection of action patterns for an agent for responding to user utterances, and enables the agent to respond to the user utterances,

wherein the user utterance collection includes a general utterance library that stores general user utterances and a specialized utterance library that stores utterances related to a specialized field of the agent.

17. A user support system comprising a plurality of said user support apparatus of claim 16 connected to a network as independent network nodes, wherein each of the apparatus is provided according to each said specialized field, and each node is so configured as to be accessible from the user.

18. The system of claim 17, wherein the plurality of said user support apparatus independently manages each specialized utterance library and shares the general utterance library.

19. The system of claim 17, further including a library providing unit which manages the user utterance library and offers the user utterance library to a third party off-line or online.

20. The system of claim 17, wherein the first block includes:
an utterance search unit which searches the utterance of the user in the user utterance collection; and
a reporting unit which notifies a system administrator when the user utterance is not found in the user utterance collection.

21. The system of claim 20, wherein the first block further includes an index storing unit that stores an index of contents of the user utterance collection, and the search unit initially searches the given user utterance in the index storing unit.

22. A user support apparatus comprising:

an utterance identification block which has an electronic collection of user utterances, and identifies a content of a given user utterance; and

a response block which has an electronic collection of action patterns for a first agent for responding to user utterances, and enables the first agent to respond to the user utterances,

wherein the utterance identification block has an additional collection of anticipated utterances to which the first agent should react among utterances that a second agent make to the user, and identifies a content of an utterance of the second agent if the utterance of the second agent exists in the additional utterance collection, and wherein the response block has an additional collection of action patterns for the first agent for reacting to the utterances of second agent, and enables the first agent to occasionally react to the utterances of the second agent.

23. The apparatus of claim 22, wherein the additional utterance collection is incorporated into the user utterance collection, and the user utterance and the second agent utterance are matched with the integrated user utterance collection without any discrimination, when a process of the utterance identification block comes to at least a final stage.

24. The apparatus of claim 22, wherein both the first agent and the second agent are implemented on this apparatus, and the utterance identification block and the response block are symmetrically provided for the

first agent and the second agent, and while the second agent mainly responds to the user instead of the first agent, the first agent occasionally reacts to the utterances of the second agent.

25. A user support system comprising a plurality of said user support apparatus of claim 22 connected to a network as independent network nodes, wherein each of the apparatus is provided according to each specialized field, and the additional utterance collection, the agent action collection, and the additional action collection of each user support apparatus are generated according to each specialized field.

26. The system of claim 25, wherein the plural user support apparatus include the respective response blocks therein and shares the utterance identification block at any one of the network nodes.

27. The system of claim 25, wherein each user support apparatus includes the first agent on the apparatus, and if the first agent appears on any other apparatus, the first agent acts as a second agent on said other apparatus.

28. The system of claim 25, wherein the utterance identification block includes:

an utterance search unit which searches the utterance of the user in the user utterance collection; and

a reporting unit which notifies a system administrator when the user utterance is not found in the user utterance collection.

29. The system of claim 28, wherein the utterance identification block further includes an index storing unit that stores an index of contents of the user utterance collection, and the search unit initially searches the given user utterance in the index storing unit.

30. The system of claim 25, further including a library providing unit which offers the user utterance library to a third party off-line or online.

ABSTRACT OF THE DISCLOSURE

A user support system [using an] employing agent technology is provided. [An] The entrance server identifies [a] the user [utterance] command by matching it with a collection of anticipated user [utterances] commands. An
5 index search is performed to identify the contents of the user [utterance] command. [A] The identified user command is then used to determine which specialized server [to] should respond to the user [utterance] command [is determined according to the identified user utterance]. The specialized server [has] contains a collection of action patterns [of] for an agent [for] to use in
10 responding to [the] a user [utterance] command. [The] An agent supports [the] a user [to] in searching for information and/or navigating[es the user] to [access] the desired information [by] through friendly [talking] conversation with that [the] user. The entrance server is configured as a portal site and a [plurality of the] specialized server[s] is provided for each specialized field.

15